



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ing numerous visits (partly vain, partly successful) to the libraries. So his labor is immensely enlarged, the time he needs for finishing his report increases in a very troublesome manner. The *Jahresbericht* is published much later than the editor himself and the botanical world desire. This would all be changed if the botanists of all countries would think of sending their publications directly to the editor. These writings might then be distributed immediately among the collaborators, and these might work out the greatest part of their reports in their studies, with an invaluable gain of time, so that the *Jahresbericht* might be published more promptly. What a difference, for instance, for the bacteriological collaborator to have—as indeed he has—*one to three* separates every year from the authors themselves by the intervention of the editor, and to search for the rest of the bacteriological writings in several hundreds of periodicals,—or, as it ought to be, to have some hundreds of separates from the bacteriologists themselves! The *time* allowed every year for working off the extensive *Jahresbericht* is a factor Mr. Bay has entirely overlooked. The editor sets a greater value on the appearing of the *Jahresbericht* in due time than on its absolute completeness, and he is of opinion that a botanical author himself has a still greater interest in seeing his writings publicly known than his fellow botanists and the editor of the *Jahresbericht* have. Nevertheless, most botanists will do nothing at all for spreading abroad their articles, but depend entirely on the staff of the *Jahresbericht* or of other periodicals of similar character.—E. ΚΟΗΝΕ, *Friedenau bei Berlin, Kirchstr. 5.*

On compass plants and twisting of leaves.

If it be permitted, I would like to present a few remarks concerning the nature of the torsions in the leaves of the so-called compass plants. These torsions were described as twisting by Mr. Meehan (*supra*, pp. 158–159). The leaf-movements in the compass plants are, for good reasons, interpreted as heliotropical torsions. Now, Mr. Meehan states that these torsions result from “a somewhat prolonged effort of spiral growth.”

Mr. Meehan has, evidently, confounded different movements. Having had some experience with compass plants, I shall be able, I think, to explain Mr. Meehan’s results. The question is very simple, and belongs to the elements of vegetable physiology.

I. Compass plants. Experiments (the literature was given in my article on this subject in the *Deutsche Botanische Monatsschrift* 11: 1. 1893) have demonstrated that (1.) The vertical position of the leaves is assumed only when the plant is growing fully exposed to the sunlight. (2.) When the plant is growing in the shade, the leaves assume the fixed light-position. (3.) When the plants are so situated that they receive only the oblique rays of either the morning or the evening sun, the leaves place their superior surfaces at right angles to the incident rays. (4.) When the plants are under such circumstances that they receive the sun’s rays only when the sun is high in the heavens, the leaves present their superior surfaces to the incident rays.

These results certainly indicate that the torsions are physiological. I think that Mr. Meehan’s observations are very easily and simply explained from what we know of the relations of heliotropism to growth, which has been established mainly by De Vries, Müller-Thurgau, Ch.

Darwin and Wiesner (Die heliotr. Erschein. 1878-80), namely, that *heliotropic movements may become fixed by growth*.

That growth is rhythmic, and not continuous was known already to Ingenhous and Th. de Saussure. We know that "growths that start together" are by *no* means likely to rest together, for although the question of individual differences has never been much studied, we are, in our studies, always troubled with individual variations.

The cause of the polarity is light; polarity may be changed, in *growing* leaves, into the fixed, normal light-position, when surroundings are changed; *grown* leaves will continually stay in the position of polarity. All that is needed to demonstrate this is a couple of drain pipes.

II. The twisting of leaf-blades was investigated by Wichura (Flora, —: 33. 1852.); since which time, these movements have not been much studied.

In monocotyledons, torsion of the leaves to the right takes place, when the scape is leaf-bearing, otherwise the leaves twist to the left. The list following shows some observations which I made in 1889.

Torsion to the right occurs in *Allium* (some); *Bromus*; *Triticum*; *Secale*; *Hordeum*. Torsion to the left occurs in *Fritillaria*; *Allium* (some); *Festuca*; *Avena* (upper leaves).

It has never been proved that growth is the primary cause of these movements, for an elimination of heliotropism by means of the clinostat has never been made. The twisting of leaves in Gramineæ is of much systematic value, and says ten times more than a thousand synonyms in a description.—J. CHRISTIAN BAY, *Des Moines, Iowa*.

"Minnesota Botanical Studies."

As editor of *Minnesota Botanical Studies* I regret that my selection of articles for its pages should, even in a single case, fail to meet with the approbation of Mr. F. V. Coville. My collaborateur is good enough not only to offer some useful statements of personal opinion, for which he has our thanks, upon certain debatable questions considered by Mr. E. P. Sheldon in a recent paper, but also to convey to me, through the GAZETTE, suggestions concerning what I may not without impropriety publish in the special journal entrusted to my care. Perhaps I may venture to note that *Minnesota Botanical Studies* does not hope to say the last word upon any of the matters touched upon in its columns. It is the opinion of the editor that even such preliminary contributions as he understands Mr. Coville to condemn are of value to him in the prosecution of the work he has in hand.

So far as *Minnesota Botanical Studies* is concerned, since it is supported by a Minnesota enactment, since it is a Minnesota work that it principally desires to do and since it is the wish of the editor that it be sent without price to whoever might be supposed to care for it, I hope no one will feel defrauded if some of its articles, from his broadly national point of view, seem too local and of too restricted interest for publication.

In the case in hand, while Mr. Coville's opinion of what the Minnesota survey should publish at a given moment and what it should retain in manuscript and how these manuscripts should be used, is of interest, I trust he will pardon me for suggesting that even the most unusual critical powers may be in danger of deterioration if dissipated over too wide a territory.—CONWAY MACMILLAN, *Minneapolis*.